Soil Equipment

Soil Classification

Soil is one of the oldest forming structures that our planet is formed from. Soil is a loose rocky material that is vastly used in the construction industry. Hence it is very important to test the ground soil before construction and to know the type and classification of the soil before any project.

The type of soil can be identified by several parameters one of which the percentage of clay, silt or sand found in its composition. This classification will determine the characteristics of the soil used in the civil engineering project.

Other physical parameters such as moisture content, shear strength, elasticity, specific gravity, density, degree of compaction, penetration resistance, consistency, bearing capacity, hydraulic conductivity, permeability and consolidation can effect the soil characteristics and behaviour during construction.

The testing equipment described in this section are carefully designed and manufactured to the highest international standard necessary to achieve accurate and repeatable results in testing soil material.

The principle of soil mechanics requires the use of standard testing methods offered by our range of equipment and used by trained and qualified engineers and technicians.

Soil Colour Chart

The Soil Colour Chart is used to judge the color of rocks, archaeological specimens and soil samples. 322 color chips are permanently mounted on 9 charts for basic collection of 7 hues (10R-5Y) and 2 grey charts with apertures between chips to make comparisons easier.
The tropical soil colour chart Set of 2, for use with reddish tropical soils and recommended for tropical regions.

Washable new edition features handy tabs for flipping to needed charts without getting pages dirty.

SL 0101
Soil Colour Chart
SL 0102
Tropical Soil Colour Chart

Soil Sampling Kit

The Soil Sampling Kit is designed to obtain samples for soil investigation and exploration purposes.
Made of special galvanised steel the set provide all the items needed in a convenient carrying case.

The complete kit is based on the most popular sizes used for undisturbed soil sampling including cleaning brush and user manual.

SL 0103
Soil Sampling kit
SL 0104
Soil Prospecting kit
SL 0105
Hand Auger Head 80 mm dia
SL 0106
Hand Auger Head 100 mm dia
SL 0107
Hand Auger Head 150 mm dia
SL 0108
Extended rod 1 m long

Power Auger Head

The Power Auger Head has an Ergonomic designed for optimum comfort.

It comes with a 4.5 KW two stroke engine, equipped with a lever preventing accidental acceleration and a Quick-fit spigot-socket coupler for swift attachment and replacement of bits.

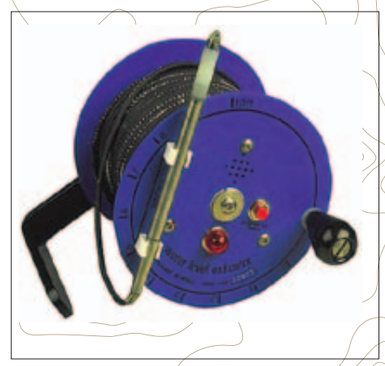
SL 0109
Power Auger Head

Accessories:
SL 0110
Auger 60 mm dia x 1 m long
SL 0111
Auger 80 mm dia x 1 m long
SL 0112
Auger 100 mm dia x 1 m long
SL 0113
Auger 150 mm dia x 1 m long
SL 0114
Auger 200 mm dia x 1 m long
SL 0115
Extension rod

Water Level Indicators

The Water Level Indicators are used to determine the water level in boreholes and wells.
Drum mounted, with an ON/OFF switch indicator and audio signal when probe touches the water.
The cable is marked at intervals and is battery operated.

SL 0116
Water Level Indicators 50 meters
SL 0117
Water Level Indicators 100 meters
SL 0118
Water Level Indicators 150 meters
SL 0119
Water Level Indicators 200 meters



Proctor Penetrometer (spring type)

Standards: ASTM D1558

The Proctor Penetrometer is used for determining the penetration resistance of fine-grained soils.
The unit consists of a special calibrated spring dynamometer with a pressure-indicating scale on the stem of the handle. It comes with a stainless steel adaptor stem for larger needles.
The pressure scale is calibrated to 100 lbs. by 1 lb. subdivisions.
There is a major division located at each 10 lb. interval. A sliding ring on the stem indicates the maximum load obtained during the test.

SL 0120
Proctor Penetrometer complete set with needle point

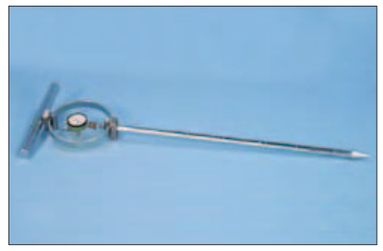
SL 0121
Set of spare needle point (0.25, 0.5, 1, 1.5, 2, 3, 5, 6 cm^2)

Proving Ring Penetrometer

The Proving Ring Penetrometer is used to determine the bearing strength, compacting degree of subgrades and also penetration resistance of soil.

It comes with a T handle 1 KN load ring, Maximum load pointer and calibration chart.

SL 0122
Proving ring Penetrometer complete



Pocket Penetrometer

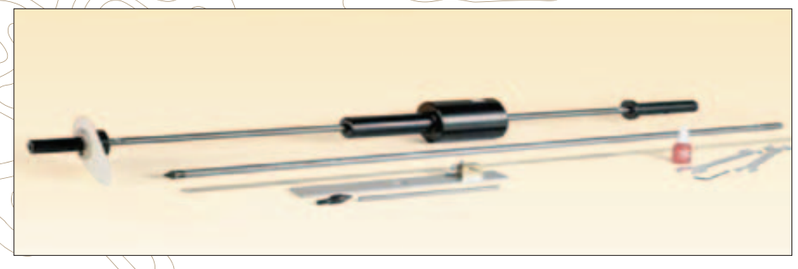
The Pocket Penetrometer is used in field exploration and in checking and comparing similar types of soil. Classifying cohesive soils in terms of consistency and estimation of approximate unconfined compressive strength and shear strength.

The cylindrical tip of 0.31 cm² area penetrate into the soil up to 6 mm marked point. A cursor on the scale reads directly unconfined compressive strength in kgf/cm².

SL 0123
Pocket Penetrometer

Dynamic Cone Penetrometer

Standards: BS 1377, 1924, 812, EN 932-1



The Dynamic Cone Penetrometer is used for In-rapid in situ measurement of structural properties of existing road pavement constructed with unbound materials.

It consists of an 8 kg weight dropping through a height of 575 mm and 60° cone having a diameter of 20 mm. DCP measurements can be made down to a depth of approximately 850 mm.

SL 0124
Dynamic Cone Penetrometer set

Static Cone Penetrometer

The Static Cone Penetrometer is used to evaluate the consistency of soils, their level of compaction and the bearing capacity of shallow foundations and pavement subgrades.

Specifically developed for use in fine grained soils, particularly soft soils, to depths of 30 feet. They use a 60° cone with an area of 1.5 cm². An optional cone with a 3 cm² area is available for use in very soft soils. Dual rod construction isolates cone resistance from shaft friction Pressure gauge ranging from 0 to 70 kg/cm² reads cone resistance directly, eliminating need for proving ring conversions. Stainless steel and anodized aluminium construction for reliable performance.

Standard models include:
A 60° cone with a maximum area of 1.5 cm²
A Starter Rod Assembly designed to withstand an axial force of 250 lbf (340 N • m) maximum
Pressure gauge marked in kg/cm²
Operating Instructions and parts list

SL 0125
Static Cone Penetrometer

Dial Penetrometer

The Dial Penetrometer comes in three different versions, the dial has a maximum value holding system with 0 setting by push buttom. The Dial dia is 60 mm, with peak holding features.

SL 0126
Range 0 to 5 kgf/cm2, plungers dia is 6.35 mm
SL 0127
Range 3 to 15 kgf/cm2, plungers dia is 6.35 mm
SL 0128
Range 0 to 6 kgf/cm2, plungers dia is 6.35 mm - 10 - 15 - 20 - 25

Pocket Shear Vane

The Pocket Shear Vane can be used in the laboratory, at the end of sample tubes, etc
Supplied complete with:
Standard 25 mm dia, vane range 0 to 10 N/cm2

Sensitive Vane adaptor, range 0 to 2 N/cm2
High capacity vane adaptor range 0 to 25 N/cm2
SL 0129
Pocket Vane Complete set

Field Inspection Vane Tester

Standards: ASTM D2573

The Field Inspection Vane Tester can be used to determine the maximum shearing force that can be exercised on a soil. Measurement in the field (on the surface, in profile pits or at the bottom of bore holes) as well as in the laboratory (on samples) are possible.

The shear stress measured can be read on a clearly readable scale ring. In soft soils it is not necessary to make a bore hole first. In order to determine the friction on the extension rods a dummy vane is available in these situations.

SL 0130
Field Inspection Vane complete set

Laboratory Vane Apparatus

The Laboratory Vane Apparatus is used to determine the shear strength in soft soil of undisturbed remolded samples.
Both manual and motorised versions are available Lightweight, compact, portable and self contained.

SL 0131
Manual Laboratory Vane Apparatus

SL 0132
Motorised Laboratory Vane Apparatus
SL 0133
Vane 12.7 mm x 12.7 mm
SL 0134
Vane 12.7 mm x 19 mm
SL 0135
Vane 12.7 mm x 25.4 mm
SL 0136
Attachment to hold a sample tube of 38 mm or 100 mm dia

Laboratory Mixer

Standards: BS 598-107, 1377-1, 1924-1, EN 12697-35

The Laboratory mixer is a planetary beater type, where the flat beaters rotate in the opposite direction to the orbit around the inside of the mixing bowl.

This ensures that the mixing is thorough and uniform. It has a direct gear drive transmission that may be set for three speeds with a control lever.

The hand lever can raise, lower and lock the bowl at the desired position. Adjustment is allowed for proper clearance between the bowl and the beater.
This Mixer is suitable for sample preparation of soils, bituminous concrete and cement mortars.

SL 0137
Laboratory Mixer 5 litre capacity complete with all accessories
SL 0138
Laboratory Mixer 10 litre capacity complete with all accessories
SL 0139
Spare stainless steel Bowl
SL 0140
Spare stainless steel Beater

Isomantle Heater

The Isomantle Heater is Used to heat the mixing bowl of (5 litres cap.) and (10 litres cap.) mixer.

It is fitted with an electronic temperature regulator and can be easily fitted to the mixer under the bowl. Max. temperature 180 °C

SL 0141
Isomantle Heater 5 litres cap
SL 0142
Isomantle Heater 10 Litres cap.

Porcelain Mortar and Rubber Head Pestle

The Porcelain Mortar and Rubber Head Pestle is used for sample reduction by gently crushing individual particles.

SL 0143
Porcelain Mortar and Rubber Head Pestle complete set

SL 0144
Spare Porcelain Mortar
125 mm dia

SL 0145
Spare Rubber Head Pestle

Laboratory Soil Grinder

The Soil Grinder Prepares soil samples to designated particle size for accurate, repeatable test results. Grinds one-pint sample in 15 seconds. Stainless steel construction. Includes a No. 10 perforated stainless plate.

The Soil Grinder is used in place of a soil mortar and pestle to quickly reduce cakes of dry soil for particle-size analysis. It is intended to grind the fraction retained on a designated sieve until the aggregations of soil particles are broken up into separate grains.

Continuous grinding is ensured by using the gate below the hopper to feed the soil at a rate that does not stall the motor.

SL 0146
Laboratory Soil Grinder

Melting Pot

The Melting pot is used to melt wax, or asphalt material used to seal the soil samples and other materials.

The temperature is adjustable and maintained at the desired value through the thermostat controler. Supplier complete with aluminum cover.
Made from cast aluminum material with a heat resistant knob.

Specify Temp:
- 60° to 250°C, 100° to 320°C
- 60° to 450°C, 150° to 550°C

SL 0147
Melting Pot 1/2 litre
SL 0148
Melting Pot 1 litre
SL 0149
Melting Pot 2.5 litre
SL 0150
Melting Pot 4.5 litre
SL 0151
Melting Pot 9 litres

Sieve Shaker

Standards: EN 932-5, ISO 3310-1

The Sieve Shaker imparts a circular motion to the material being sieved so that it makes a slow progression over the surface of the sieve.

At the same time a feature of the rapid vertical movement agitates the sample which helps to clear the sieve apertures and avoid them blinding.

The shaker is fitted with timer which can be pre-set for any duration up to 60 minutes.
This unit will accept 200mm and 300mm diameter sieves.
Wet sieving kits in the appropriate sizes may be used with this shaker.

SL 0152
Sieve Shaker

Electromagnetic Sieve Shaker

The Sieve Shaker is powered by an electromagnetic drive which has no rotating parts to wear making it maintenance free and extremely quiet in operation.

The vibratory action produced by the power unit moves the sample over the sieve in a unique way producing faster more efficient sieving, while the rapid vertical movements also help keep the apertures from pegging.

The digital controller is used to set both the process time and amplitude setting while a further control enables the vibration to run continuously or intermittently.

SL 0153
Electromagnetic Sieve Shaker

Testing Sieves

Standards: EN 933-2, ISO 3310-1, ISO 3310-2, ISO 565

All test sieves are manufactured to National and International Specifications and are supplied with a “Certificate of Compliance”.

Each sieve is individually serial numbered, ensuring full traceability. Particle Size Analysis is probably performed in all laboratories engaged in testing materials for civil engineering applications.

The range of sieves offered includes ISO, EN, BS and ASTM sieves. Woven wire test sieves are manufactured from stainless steel mesh while the Perforated plate test sieves are manufactured from tinned steel plate.

All test sieves unless otherwise indicated are supplied with full-depth frames.
All our sieves are manufactured in the United Kingdom.

Testing Sieves

Standards: EN 933-2, ISO 3310-1, ISO 3310-2, ISO 565

Sieve Size 200 mm dia	Sieve Size 300 mm dia	Woven wire stainless steel mesh
Product code	Product code	Mesh Size and description, BS 410/ISO 3310
SL 0155	SL 0192	Lid
SL 0156	SL 0193	Receiver
SL 0157	SL 0194	20 micron
SL 0158	SL 0195	25 micron
SL 0159	SL 0196	32 micron
SL 0160	SL 0197	36 micron
SL 0161	SL 0198	38 micron
SL 0162	SL 0199	40 micron
SL 0163	SL 0200	45 micron
SL 0164	SL 0201	50 micron
SL 0165	SL 0202	53 micron
SL 0166	SL 0203	56 micron
SL 0167	SL 0204	63 micron
SL 0168	SL 0205	71 micron
SL 0169	SL 0206	75 micron
SL 0170	SL 0207	80 micron
SL 0171	SL 0208	90 micron
SL 0172	SL 0209	100 micron
SL 0173	SL 0210	106 micron
SL 0174	SL 0211	112 micron
SL 0175	SL 0212	125 micron
SL 0176	SL 0213	140 micron
SL 0177	SL 0214	150 micron
SL 0178	SL 0215	160 micron
SL 0179	SL 0216	180 micron
SL 0180	SL 0217	200 micron
SL 0181	SL 0218	212 micron
SL 0182	SL 0219	224 micron
SL 0183	SL 0220	250 micron
SL 0184	SL 0221	280 micron
SL 0185	SL 0222	300 micron
SL 0186	SL 0223	315 micron
SL 0187	SL 0224	355 micron
SL 0188	SL 0225	400 micron
SL 0189	SL 0226	425 micron
SL 0190	SL 0227	450 micron
SL 0191	SL 0228	500 micron

Testing Sieves

Standards: EN 933-2, ISO 3310-1, ISO 3310-2, ISO 565

Sieve Size 200 mm dia	Sieve Size 300 mm dia	Woven wire stainless steel mesh
Product code	Product code	Mesh Size and description, BS 410/ISO 3310
SL 0229	SL 0266	560 micron
SL 0230	SL 0267	560 micron
SL 0231	SL 0268	600 micron
SL 0232	SL 0269	630 micron
SL 0233	SL 0270	710 micron
SL 0234	SL 0271	800 micron
SL 0235	SL 0272	850 micron
SL 0236	SL 0273	900 micron
SL 0237	SL 0274	1 mm
SL 0238	SL 0275	1.12 mm
SL 0239	SL 0276	1.18 mm
SL 0240	SL 0277	1.25 mm
SL 0241	SL 0278	1.40 mm
SL 0242	SL 0279	1.60 mm
SL 0243	SL 0280	1.70 mm
SL 0244	SL 0281	1.80 mm
SL 0245	SL 0282	2.00 mm
SL 0246	SL 0283	2.24 mm
SL 0247	SL 0284	2.36 mm
SL 0248	SL 0285	2.50 mm
SL 0249	SL 0286	2.80 mm
SL 0250	SL 0287	3.15 mm
SL 0251	SL 0288	3.35 mm
SL 0252	SL 0289	3.55 mm
SL 0253	SL 0290	4.00 mm
SL 0254	SL 0291	4.50 mm
SL 0255	SL 0292	4.75 mm
SL 0256	SL 0293	5.00 mm
SL 0257	SL 0294	5.60 mm
SL 0258	SL 0295	6.30 mm
SL 0259	SL 0296	6.70 mm
SL 0260	SL 0297	7.10 mm
SL 0261	SL 0298	8.00 mm
SL 0262	SL 0299	9.00 mm
SL 0263	SL 0300	9.50 mm
SL 0264	SL 0301	10.00 mm
SL 0265	SL 0302	11.2 mm

Testing Sieves

Standards: EN 933-2, ISO 3310-1, ISO 3310-2, ISO 565

Sieve Size 200 mm dia	Sieve Size 300 mm dia	Woven wire stainless steel mesh
Product code	Product code	Mesh Size and description, BS 410/ISO 3310
SL 0303	SL 0331	12.5 mm
SL 0304	SL 0332	13.2 mm
SL 0305	SL 0333	14.00 mm
SL 0306	SL 0334	16.00 mm
SL 0307	SL 0335	18.00 mm
SL 0308	SL 0336	19.00 mm
SL 0309	SL 0337	20.00 mm
SL 0310	SL 0338	22.4 mm
SL 0311	SL 0339	25.00 mm
SL 0312	SL 0340	26.5 mm
SL 0313	SL 0341	28.00 mm
SL 0314	SL 0342	31.5 mm
SL 0315	SL 0343	35.5 mm
SL 0316	SL 0344	37.5 mm
SL 0317	SL 0345	40.00 mm
SL 0318	SL 0346	45.00 mm
SL 0319	SL 0347	50.00 mm
SL 0320	SL 0348	53.00 mm
SL 0321	SL 0349	56.00 mm
SL 0322	SL 0350	63.00 mm
SL 0323	SL 0351	71.00 mm
SL 0324	SL 0352	75.00 mm
SL 0325	SL 0353	80.00 mm
SL 0326	SL 0354	90.00 mm
SL 0327	SL 0355	100.00 mm
SL 0328	SL 0356	106.00 mm
SL 0329	SL 0357	112.00 mm
SL 0330	SL 0358	125.00 mm

Testing Sieves

Standards: EN 933-2, ISO 3310-1, ISO 3310-2, ISO 565

Sieve Size 200 mm dia	Sieve Size 300 mm dia	Perforated plate mild steel plate sieve
Product code	Product code	Mesh Size and description, BS 410/ISO 3310
SL 0359	SL 0396	4.00 mm
SL 0360	SL 0397	4.50 mm
SL 0361	SL 0398	4.75 mm
SL 0362	SL 0399	5.00 mm
SL 0363	SL 0400	5.60 mm
SL 0364	SL 0401	6.30 mm
SL 0365	SL 0402	6.70 mm
SL 0366	SL 0403	7.10 mm
SL 0367	SL 0404	8.00 mm
SL 0368	SL 0405	9.00 mm
SL 0369	SL 0406	9.50 mm
SL 0370	SL 0407	10.00 mm
SL 0371	SL 0408	11.2 mm
SL 0372	SL 0409	12.5 mm
SL 0373	SL 0410	13.20 mm
SL 0374	SL 0411	14.00 mm
SL 0375	SL 0412	16.00 mm
SL 0376	SL 0413	18.00 mm
SL 0377	SL 0414	19.00 mm
SL 0378	SL 0415	20.00 mm
SL 0379	SL 0416	22.4 mm
SL 0380	SL 0417	25.00 mm
SL 0381	SL 0418	26.50 mm
SL 0382	SL 0419	28.00 mm
SL 0383	SL 0420	31.5 mm
SL 0384	SL 0421	35.50 mm
SL 0385	SL 0422	37.50 mm
SL 0386	SL 0423	40.00 mm
SL 0387	SL 0424	45.00 mm
SL 0388	SL 0425	50.00 mm
SL 0389	SL 0426	53.00 mm
SL 0390	SL 0427	56.00 mm
SL 0391	SL 0428	71.00 mm
SL 0392	SL 0429	75.00 mm
SL 0393	SL 0430	80.00 mm
SL 0394	SL 0431	90.00 mm
SL 0395	SL 0432	100.00 mm

Testing Sieves

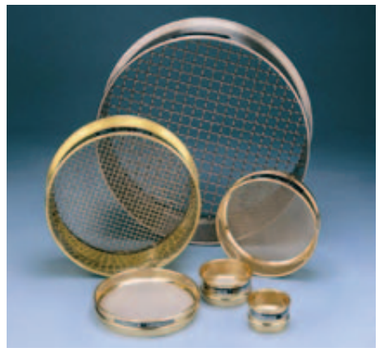
Standards: EN 933-2, ISO 3310-1, ISO 3310-2, ISO 565

Sieve Size 200 mm dia	Sieve Size 300 mm dia	Perforated plate mild steel plate sieve
Product code	Product code	Mesh Size and description, BS 410/ISO 3310
SL 0433	SL 0436	106 mm
SL 0434	SL 0437	112 mm
SL 0435	SL 0438	125 mm

Testing Sieves

Standards: ASTM E11

ASTM E11 sieves are similar in construction to those used in the British Standard range.
Two frame sizes are available as standard, 8 inch or 12 inch diameter.



Sieve Size 8 inch dia	Sieve Size 12 inch dia	Woven wire stainless steel mesh
Product code	Product code	Mesh Size and description, ASTM
SL 0439	SL 0452	20 micron - no. 635
SL 0440	SL 0453	25 micron - no. 500
SL 0441	SL 0454	32 micron - no. 450
SL 0442	SL 0455	38 micron - no. 400
SL 0443	SL 0456	45 micron - no. 325
SL 0444	SL 0457	53 micron - no. 270
SL 0445	SL 0458	63 micron - no. 230
SL 0446	SL 0459	75 micron - no. 200
SL 0447	SL 0460	90 micron - no. 170
SL 0448	SL 0461	106 micron- no. 140
SL 0449	SL 0462	125 micron - no. 120
SL 0450	SL 0463	150 micron - no. 100
SL 0451	SL 0464	180 micron - no. 80

Testing Sieves

Standards: Standards: ASTM E11

Sieve Size 8 inch dia	Sieve Size 12 inch dia	Woven wire stainless steel mesh
Product code	Product code	Mesh Size and description, ASTM
SL 0465	SL 0502	212 micron - no. 70
SL 0466	SL 0503	250 micron - no. 60
SL 0467	SL 0504	300 micron - no. 50
SL 0468	SL 0505	355 micron - no. 45
SL 0469	SL 0506	425 micron - no. 40
SL 0470	SL 0507	500 micron - no. 35
SL 0471	SL 0508	600 micron - no. 30
SL 0472	SL 0509	710 micron - no. 25
SL 0473	SL 0510	850 micron - no. 20
SL 0474	SL 0511	1.00mm- no. 18
SL 0475	SL 0512	1.18mm- no. 16
SL 0476	SL 0513	1.40mm- no. 14
SL 0477	SL 0514	1.70mm- no. 12
SL 0478	SL 0515	2.00mm- no. 10
SL 0479	SL 0516	2.36mm - no. 8
SL 0480	SL 0517	2.80mm - no. 7
SL 0481	SL 0518	3.35mm - no. 6
SL 0482	SL 0519	4.00mm - no. 5
SL 0483	SL 0520	4.75mm - no. 4
SL 0484	SL 0521	5.60mm - no. 3 ½
SL 0485	SL 0522	6.30mm - 1/4 inch
SL 0486	SL 0523	6.70mm 0.265 inch
SL 0487	SL 0524	8.00mm - 5/16 inch
SL 0488	SL 0525	9.50mm - 3/8 inch
SL 0489	SL 0526	11.2mm - 7/16 inch
SL 0490	SL 0527	12.5mm - 1/2 inch
SL 0491	SL 0528	13.2mm 0.530 inch
SL 0492	SL 0529	16.0mm - 5/8 inch
SL 0493	SL 0530	19.0mm - 3/4 inch
SL 0494	SL 0531	22.4mm - 7/8 inch
SL 0495	SL 0532	25.0mm - 1 inch
SL 0496	SL 0533	26.5mm - 1.06 inch
SL 0497	SL 0534	31.5mm - 1 1/4 inch
SL 0498	SL 0535	37.5mm 1 1/2 inch
SL 0499	SL 0536	45.0mm 1 3/4 inch
SL 0500	SL 0537	50.0mm - 2 inch
SL 0501	SL 0538	90.0mm 3 1/2 inch

Testing Sieves

Standards: ASTM E11

Sieve Size 8 inch dia	Sieve Size 12 inch dia	Woven wire stainless steel mesh
Product code	Product code	Mesh Size and description, ASTM
SL 0539	SL 0544	100mm - 4 inch
SL 0540	SL 0545	106mm - 4.24 inch
SL 0541	SL 0546	125mm - 5 inch
SL 0542	SL 0547	Lid
SL 0543	SL 0548	Receiver

SL 0549
75 µm Washing Sieve 8 in diameter x 8 in deep
SL 0550
75 µm Washing Sieve 200 mm diameter, 200 mm deep

Accessories:
SL 0551
Sieve Brush, double-ended, brass and nylon bristle
SL 0552
Sieve Brush, nylon, double-ended

Ultrasonic cleaning bath

Standards: ASTM E11

The Ultrasonic cleaning baths use cavitation to remove dirt from objects that are immersed in the cleaning liquid.

Cavitation is the sequential formation and collapse of vapour bubbles and voids in a liquid subjected to acoustic energy at high frequency and intensity.

Cavitation occurs wherever the liquid penetrates, ensuring that the smaller and larger aperture sieves are cleaned equally well. Ultrasonic baths are also useful for cleaning fragile items such as glassware.

The 25 litre cleaning bath has an internal diameter of 410mm and a height of 200mm, accommodating sieves of up to 400mm diameter.

Cleaning baths are manufactured from stainless steel, supplied complete with a 0 - 15 minute timer, lid and incorporate an ultrasonic generator which is suitable for continuous operation..

SL 0553
Ultrasonic Cleaning Baths 25 lt capacity

SL 0554
cleaning Liquid, 5 lt

Speedy Moisture Meter

Standards: BS 812, ASTM D4944, AASHTO T217

The Speedy Moisture is a portable system comprising a vessel with an integral pressure gauge a weighing scale and a carry case.

A small sample of the material is prepared, weighed and placed into the vessel. The reagent is then added and the vessel is sealed and shaken to mix the reagent with the sample.
Free moisture within the sample reacts with the reagent to produce a gas and pressure rise within the vessel that is proportional to the amount of moisture.

The moisture content value is then read directly from the calibrated pressure gauge.

Speedy vessel manufactured from cast aluminium and fitted with a calibrated pressure gauge with a moisture measurement range of 0 - 20%. with 0.2% Gauge divisions.

SL 0555
Small Speedy, 6 gr sample
SL 0556
Small Speedy, 20 gr sample
SL 0557
Calcium Carbide

Universal Carbide Meter

Standards: BS 812, ASTM D4944, AASHTO T217

The moisture content can be determined using the Moisture tester based on the calcium carbide method.
The soil sample is introduced in the bottle with the reagent. The water reacts with calcium carbide and develops a gas pressure, which is indicated on the manometer and easily converted in percentage of moisture.

SL 0558
Small Carbide Meter, 10 gr sample
SL 0559
Medium Carbide Meter, 20 gr sample
SL 0560
Large Carbide Meter, 50 gr sample
SL 0561
Calcium Carbide reagent ampoules pack of 100 pieces

Liquid Limit Devices: Casagrande Method

Standards: BS 1377:2, ENV 1997-2, ASTM D4318, AASHTO T89

Used to determine the moisture content at which clay soils pass from a plastic to a liquid state.

It helps in the classification of soil when comparing the potential properties of soil material against empirical data.

Consists of a removable brass cup, adjustable crank, mechanical blow counter, and base.

SL 0562
Manual Liquid Limit complete with counter, metal grooving tool and test gauge, BS Standard
SL 0563
Motorised Liquid Limit complete with counter, metal grooving tool and test gauge, BS Standard
SL 0564
Manual Liquid Limit complete with counter, less ASTM Standard

SL 0565
ASTM Metal Grooving Tool
SL 0566
AASHTO Casagrande Grooving Tool

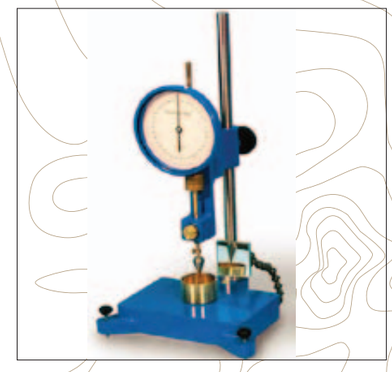
Cone Penetrometer Test

Standards: BS 1377, 1924-2, EN DD ENV 1997-2

The Cone Penetrometer is used to carry on liquid limit tests on soil samples.
It is a static test depending on the soil shear strength.

The test is based on the relationship between moisture content and the penetration of a cone into the soil sample under pre-set conditions.

SL 0567
Manual operated Cone Penetrometer Supplied complete penetration needle and sample cups
SL 0568
Semi-Automatic Cone Penetrometer Supplied complete penetration needle and sample cups
SL 0569
Fully Automatic Cone Penetrometer



Supplied complete penetration needle and sample cups

Determination of Plastic Limit

Standards: ASTM D4318, AASHTO T90, BS 1377:2

The plastic limit (WP) is defined as the lowest moisture content of a soil that will permit a sample to be rolled into threads of 3 mm diameter without the threads breaking.

The Plastic Limit Set comprises of a glass plate, steel rod, mixing dish, spatula and 4 moisture content tins.

SL 0570
Plastic Limit complete test set

SL 0571
Glass Plate

Determination of Shrinkage Limit

Standards: ASTM D427, AASHTO T92, BS 1377

When the water content of a fine-grained soil is reduced below the plastic limit, shrinkage of the soil mass continues until the shrinkage limit is reached.

This method of test covers the determination of the shrinkage limit, shrinkage ratio, volumetric shrinkage and linear shrinkage.

The set comprises prong plate, shrinkage dish, spatula, glass measuring cylinder and two moisture content tins.

SL 0572
Shrinkage Limit complete test set

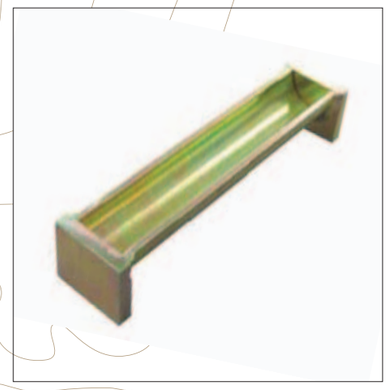
Linear Shrinkage Mould

Standards: BS 1377:2

The Linear Shrinkage test covers the determination of the shrinkage of soils and indicates the plastic properties of soils with low clay content.

Linear Shrinkage Mould 140 mm long, 12.5 mm radius.
weight: 300 g.

SL 0573
Linear Shrinkage Mould
SL 0574
Vernier Caliper



Voluvessel, 1/20 cu. ft. (1600ml) capacity

Standards: ASTM D2167; AASHTO T205

The Voluvessel determine the in-place density of compacted or firmly-bonded soils using a rubber balloon apparatus viewed through a graduated, direct-reading clear plastic cylinder protected by metal casing.

The model features a plastic cylinder, which screws into the density plate with the pump assembly mounted to the base.

The Voluvessel comes with a pressure-vacuum pump assembly, pressure gauge, quick coupler valve, double graduated cylinder, 10 balloons and a density plate.

SL 0575
Voluvessel complete test set.
SL 0576
Spare Balloons, for use with Voluvessel Apparatus. Pack of 10

Guelph Permeameter Apparatus

Standards: ASTM D5126

The Guelph Permeameter is use for measuring in-situ hydraulic conductivity.
Accurate evaluation of soil hydraulic conductivity, soil captivity, and matrix flux potential can be made in all types of soils.

SL 0577
Guelph Permeameter Complete Set

Comprises:

- Permeameter field tripod
- Well auger
- Well preparation
- Cleanup tools
- Collapsible water container
- Vacuum test hand pump
- Durable carrying case

Falling Head Permeameter Apparatus

The Falling Head Permeameter apparatus is used to determine the permeability of clay-like or silty soils.
The specimen is confined within the permeameter which is connected to the manometer tube filled with water.
The sample must be completely satured with water before the test, and the operator will check the rate of fall of the water in the tube passing through the test specimen.

The set consists of Manometer tubes and stand with three tubes each dia. 3, 4 and 6 mm for the different degrees of permeability, soaking reservoir with cock, tubing and connectors.

Permeameter dia. 4” complete with perforated plates and stainless steel gauze.

SL 0578
Permeameter dia. 6” complete with perforated plates and stainless steel gauze
SL 0579
De-airing tank 20 litre capacity made from acrylic plexiglass
SL 0580
Water trap to collect the water condensation
SL 0581
Portable vacuum pump, 230 V 1ph 50 Hz
SL 0582
Rubber tubing for vacuum, 3 m long

Constant Head Permeameter Apparatus

Standards: BS 1377:5 ; ASTM D2434 ; AASHTO T215

The Constant Head Pemeameter apparatus is used for testing the permeability of granular soils (sand and gravels).
The specimen is formed in a permeability cell and water is passed through it from a constant level tank.

Take off point located along the sides of the permeability cell are connected to three manometer tubes mounted on a panel complete with a metre scale.

Water passing through the specimen is collected and measured, either for a specific quality or over a period of time.
The reduction of head is noted from the variation of water level in the manometer tubes.

SL 0583
Manometer tubes and stand, comprising three tubes of constant bore, graduated scale, tubing and connectors.

SL 0584
Constant head permeability cell 75 mm dia., with three pressure take-off points.

SL 0585
Constant head permeability cell 114 mm dia., with six pressure take-off points and an additional six blanked-off pressure points.

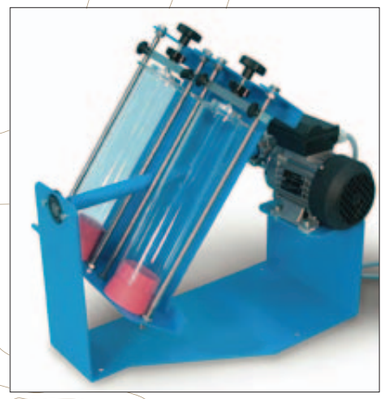
SL 0586
Constant level tank,

Gas Jar Method: End-Over-End Shaker

Standards: BS 1377:2, EN 1997-2

The The End over End Shaker is used to determine the specific gravity of soils containing up to 10% particles retained on a 37.5 mm sieve, it rotates two gas jars at approx 50 rpm to satisfy BS Standard. The shaker is equipped with an original friction device.
220 V, 50-60 Hz, 1 ph

SL 0587
End-over-End Shaker
SL 0588
Gas Jar 1 litre capacity complete with rubber bung and glass cover



Mechanical End-over-End Shaker

Standards: BS 1377, EN 1997-2

The Particle density or specific gravity is a measure of the actual particles which make up the soil mass and is defined as the ratio of the mass of the particles to the mass of the water they displace.

This method is suitable for soils containing up to 10% of particles retained on a 37.5 mm BS sieve.

SL 0589
Mechanical End-over-End Shaker
SL 0590
Gas Jar 1 litre capacity complete with rubber bung and glass cover

Sedimentation Hydrometer Apparatus

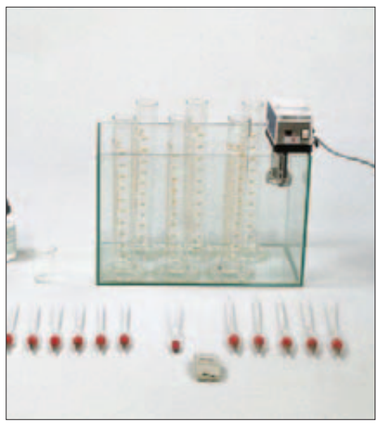
Standards: BS 1377, ASTM D422, AASHTO T88

The Sedimentation Hydrometer apparatus is used to determine particle size distribution in soil from the coarse sand size down to the smallest fractions.

In this method the sample is cleaned from organic matter after which it is dried and weighed. Next it is suspended in water and sieved.
The solution that passes through the sieve is transferred to a measuring cylinder with water.

Hydrometer readings are taken after regular intervals. Sedimentation time and hydrometer readings are used to determine the grain sizes according to the Stoke's Law.

SL 0591
Constant Temperature Bath
SL 0592
Sodium Hexametaphosphate 500 g
SL 0593
Hydrometer Sedimentation Cylinder 1000 ml



Mechanical Analysis Stirrer

Standards: BS ASTM D422;AASHTO T88

The compact, bench-top mechanical stirrer is used for dispersing soil samples in water for hydrometer analysis. The stirrer is supplied complete with Mixing Paddle and Dispersion Cup.

SL 0594
Mechanical Analysis Stirrer

SL 0595
Soil Hydrometer BS/EN, graduated 0.0995 to 1.030 g/ml.

SL 0596
Soil Hydrometer ASTM/AASHTO (152H) graduated –5 to +60 g/litre.

SL 0597
Soil Hydrometer ASTM D422 (151H) graduated 0.0995 to 1.038 g/ml.+60 g/litre.

Pyknometer Methods

Standards: BS 1377, 812-2, EN 1097-7, 1997-2, ASTM D 854, AASHTO T100

The Pyknometer Method is used to determine the specific gravity of clays, sand and gravel of size smaller than 10mm. Specific gravity is the ratio of weight to volume of a specific material in air and in water at a constant temperature.

SL 0598
Density Bottle 25 ml, Supplied complete with capillary vent stopper.

SL 0599
Density Bottle 50 ml, Supplied complete with capillary vent stopper.
SL 0600
Density Bottle 100 ml, Supplied complete with capillary vent stopper.
SL 0601
Pyknometer 1000 ml, Glass jar complete with non-corrodible cone and rubber seal.
SL 0602
Spare Rubber seal

Magnetic Stirrer

Standards: EN 933–8, ASTM D2419, AASHTO T176

The magnetic stirrer hotplates are specifically designed for laboratory usage. Available in a choice of either robust aluminium or chemically resistant ceramic top, each is equipped with a range of advanced safety and communication features. To alert the user, a "Hot" warning light will flash whenever the plate temperature is above 50°C. Powerful magnets and motor give stirring speed up to 1500rpm and volumes up to 15 litres. The units automatically detect when the contact thermometer is plugged in and is visible by an illuminated LED on the hotplate, providing reassurance that the temperature of the sample is precisely controlled at all times.

SL 0603
Magnetic Stirrer complete test set

Sand Equivalent Test

Standards: EN 933–8, ASTM D2419, AASHTO T176

The Sand Equivalent Test indicates the relative portion of undesirable clay-like or plastic fines and dusts that occur in granular soils and fine aggregates passing the No. 4 sieve.

The sample to be tested is placed in a special solution of calcium chloride, formaldehyde and glycerine. After shaking the cylinder, it is allowed to stand for a 20-minute sedimentation period.
Readings are then taken on the cylinder scale for the level of the top of the clay suspension and for the sand level.
The “Sand Equivalent” is the sand reading divided by the clay reading x 100. When the water content of a fine-grained soil is reduced below the plastic limit, shrinkage of the soil mass continues until the shrinkage limit is reached.

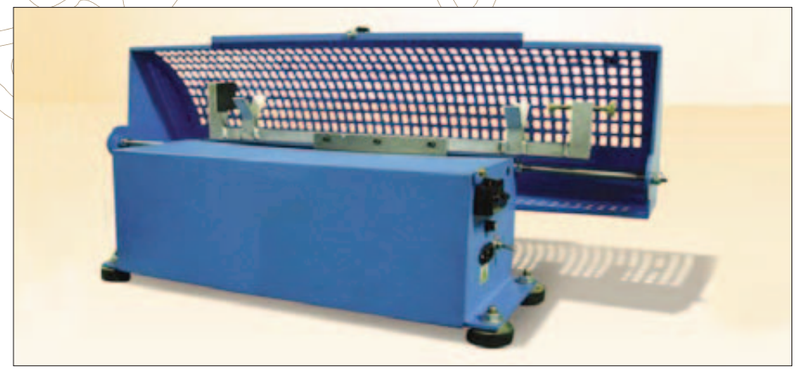
SL 0604
Sand Equivalent Test Set

Sand Equivalent Shaker

Standards: EN 933–8, ASTM D2419, AASHTO T176

The Sand Equivalent Shaker is recommended for laboratories performing sand equivalent tests on a regular basis.
The shaker is used for uniform shaking of Sand Equivalent Measuring Cylinders.
Provides shaking action at the specified rate and stroke. Supplied complete with built in timer.

SL 0605
Sand Equivalent Shaker



Sand Cone Density

Standards: ASTM D1556, AASHTO T191

The Sand Cone Density is used for on site determination of the degree of compaction of sand.
Complete set includes double cone, plastic sand jar 5lt capacity and metal tray.

SL 0606
Sand Cone Density complete set
SL 0607
Standard Sand, 600/300 µm, 50 Kg.

Sand Replacement

Standards: BS 1377:9, 1924:2

The Sand Replacement is used to determine the dry density of in-situ compact, fine, medium grained soils and for layers not exceeding 50 cm thickness.
A circular hole is dug in the ground, all the soil from within it is collected, weighed and dried.
The hole is then back-filled with standard uniform sand or fine gravel, poured from a calibrated container for calculating the volume of hole.

Complete set consists of pouring cylinder, calibration container and a tray. The sand pouring cylinder is made of cast aluminum and precisely machined.
The calibration container and tray are made of plated sheet steel.

SL 0608
Sand Replacement Set 100 mm
SL 0609
Sand Replacement Set 150 mm

SL 0610
Sand Replacement Set 200 mm

Riffle Boxes

Standards: BS 1377, 1924, 812, EN 932-1, 933-3, ASTM C72

Riffle Boxes are used for dividing soil aggregates into representative sample increment for testing.
Heavy Duty Electrostatic painted and manufactured from heavy gauge sheet metal the slot widths and number of slots as required in the standards.
Riffle boxes are supplied complete with 3 containers easy to handle.

SL 0611
Slot Width 7 mm 2,2 kg
SL 0612
Slot Width 13 mm 6,2 kg
SL 0613
Slot Width 15 mm 8 kg
SL 0614
Slot Width 19 mm 9,5 kg
SL 0615
Slot Width 25 mm 12,5 kg
SL 0616
Slot Width 30 mm 19,9 kg
SL 0617
Slot Width 38 mm 21 kg
SL 0618
Slot Width 45 mm 24,7 kg
SL 0619
Slot Width 50 mm 26,8 kg

SL 0620
Slot Width 64 mm 32,1 kg
SL 0621
Slot Width 75 mm 35,3 kg

Gilson Sample Splitter

Standards: ASTM D427, AASHTO T92, BS 1377

The Gilson Sample Splitter is rugged, large-capacity floor model for field or lab use.
Features adjustable chutes and gate release hopper.
Particle sizes from 60 microns to 6 inch, Includes 2 pans.

SL 0622
Gilson Sample Splitter

Plate Bearing Test Equipment

Standards: ASTM D 1194, D1195, D1196, BS 1377:9

The Plate Bearing Test is used to determine the bearing capacity of a soil under field loading conditions for a specific loading plate and depth of embedment. It is also used for load tests of soil and flexible pavement components.
The Basic test set unit is supplied complete with 2.4 meter long datum bar. 3 dial gauges (50 mm) hydraulic cylinder 500 KN with hand pump, pressure gauge, connections and 300 mm diameter loading plate.

SL 0623
Plate Bearing Complete Set
SL 0624
300mm dia loading plate
SL 0625
450mm dia loading plate
SL 0626
600 mm dia loading plate
SL 0627
760 mm dia loading plate

Electrical Density Gauge

Standards: ASTM D6938, D2950, C1040 and AASHTO T310

The electrical density gauge measures pavement density indirectly by measuring its dielectric constant. It passes a small current through the pavement, which creates an electrical sensing field. Density is measured by the response of this electrical sensing field to changes in the pavement's complex impedance (consisting of the pavement's composite resistivity and dielectric constant).

The advantage of using the electrical density gauge is that the readings can be obtained in seconds.
It contains no radioactive source and therefore not subject to radiological controls. More effective cost control, no licensing or special training needed, easier to use, light in weight.

SL 0628
Electrical Density Gauge

Nuclear Density Gauge

Standards: ASTM D6938, D2950, C1040 and AASHTO T310

The Nuclear Density Gauge that is better in performance than any other gauge on the market today with the lowest maintenance and operating costs.

Operation is straightforward and uncomplicated. Menu options are easy to read and navigate.
A backlit LCD screen and special scroll functions allow operators to easily read.

The gauge uses an advanced micro-processor-based technology to provide highly-accurate measurements of density and moisture that are automatically computed for direct readouts of wet density, dry density, moisture content, percent of moisture, percent of compaction (Proctor or Marshall), void ratio and air voids.

SL 0629
Nuclear Density Gauge

Consolidation Apparatus

Standards: BS 1377:5 / ASTM D2435, D3877, D4546, AASHTO T216

The One-dimensional Consolidation test is used to determine the consolidation characteristics of soils of low permeability.
The consolidation is rigidly constructed to ensure minimum frame distortion.
The frame is designed to load the specimen through a yoke assembly and one of three alternative beam ratios as 9:1 – 10:1 and 11:1.
The beam is fitted with a counter balance weight and beam support check. The cell platform will accept the complete range of consolidation cells and is fitted with a central spigot to ensure accurate centering of the cell under the loading yoke.

The fixed ring consolidation cells are manufactured from corrosion-resistant materials and conform to the requirements of the relevant standards.

An integral water reservoir is incorporated in the cell which allows the specimen to be inundated when required.

SL 0630
Consolidation Frame
SL 0631
Floor-mounting stand securing up to three Consolidation Frames.
SL 0632
Set of weights (4x10 kg, 1x5 kg, 2x2 kg, 1x1kg)

Consolidation Cells

SL 0633
Consolidation cell, 50 mm complete
SL 0634
Consolidation cell, 75 mm complete
SL 0635
Consolidation cell, 2.5 inch complete
SL 0636
Floating Ring Consolidation Cell 63.5 mm (2.5 in) diameter sample.

Measurement of Movement

SL 0637
Dial Gauge BS, 10 x 0,001 mm div
SL 0638
Dial Gauge ASTM, 0.5 x 0.0001 inch div
SL 0639
Displacement Transducer, BS
SL 0640
Displacement Transducer, ASTM
SL 0641
Data Logger

Spare

SL 0642
Cutting ring
SL 0643
Calibration disc
SL 0644
Upper porous disc
SL 0645
Lower porous disc

Direct Residual Shear Apparatus

Standards: BS 1377, EN 1997-2, ASTM D3080, AASHTO T236

The Digital Residual Direct Shear Apparatus is used for determination of the direct shear strength of soils specimen.
The process is known as shear failure and occurs when shear stresses set up in the soil mass exceed the maximum shear resistance which the soil can offer, i.e. its shear strength.

Comprises:

Direct Shear box, floor mounted with carriage assembly and load hanger with 10:1 lever loading device. Microprocessor controlled digital motor with digital keyboard display and return datum facility. Variable speed over the range of 0.00001 to 9.99999mm/minute. Fast forwar reverse 10 mm per minute.

SL 0646
Digital Direct Residual Shear Apparatus, Supplied without shearbox, load ring, vertical and horizontal dial gauges.
SL 0647
Slotted Weights, 50 kg Set of Weights

Measurement of Load
SL 0648
Compression Load ring, 2 KN
SL 0649
Compression Load ring, 5 KN
SL 0650
S-type Load Cell, 5 KN

Measurement of Movement
SL 0651
Vertical Dial Gauge, 10 x 0,01mm
SL 0652
Horizontal Dial Gauge, 10 x 0,01mm
SL 0653
Displacement Transducer

Shear Box Assemblies
SL 0654
Shear Box Assembly BS 1377, 60x60x25mm, 2 Kg
SL 0655
Shear Box Assembly BS 1377, 100x100x25mm, 5.2 Kg
SL 0656
Shear Box Assembly ASTM D3080, 2.5 x 1inch, 2.8 Kg

Accessories and Spares
SL 0657
Specimen Cutter for 60mm
SL 0658
Specimen Extrusion Tool for 60mm
SL 0659
Porous Disc for 60mm

SL 0660
Specimen Cutter for 100mm
SL 0661
Specimen Extrusion Tool for 100mm
SL 0662
Porous Disc for 100mm

SL 0663
Specimen Cutter for 2.5inch
SL 0664
Specimen Extrusion Tool for 2.5inch
SL 0665
Porous Disc for 2.5inch

Automatic Soil Compactor

Standards: BS 1377-4, 1990, EN 1997-2, 1924, 13286-2, 47, ASTM D558, 560, 698, 1557, AASHTO T99, T134, 135, 136, 180, 193

The Automatic Soil Compactors is designed to provide a uniform compaction of Standard, Modified and CBR specimens assuring conformity with the reference standard.

The Compactor is equipped with programmable digital counter which allows machine to stop at the preset numbers of blows. The height and weight of the rammer is adjustable to suit test requirements.
The drop weight is adjustable to 300 mm drop height and is also adjustable to 450 mm drop height. The rammer is circular faced with a 50 mm diameter and is adjustable to 2.5 kg. or 4.5 kg.
An automatic blow pattern ensures effective compaction for each layer of soil and the rammer travels across the mould.

The table rotates the mould in equal steps and the number of blows per layer can be set at the beginning of the test by the digital counter.

Drop Height: 300 mm, 305 mm, 450 mm, 457 mm (adjustable)
Rammer Weight: 2.5 kg, 4.5 kg
Dimensions:
640 x 340 x 1506 mm (w x l x h)
Power: 220 V, 50-60 Hz, 1 ph
Weight (approx.): 135 kg

SL 0666
Automatic Soil Compactor BS/EN
SL 0667
Automatic Soil Compactor ASTM
Spares
SL 0668
Rammer BS/EN, 50 mm dia, adjustable to 2.5 kg or 4.5 kg weight
SL 0669
Rammer ASTM, 2 in dia, adjustable to 5.5 lb (2.5 kg) or 10 lb (4.5 kg)

Dry Density, Moisture Relationship, Standard and Modified Proctor Mould

Standards: BS1377-4,1924-2,1997-2,ASTM D558,559,560,698,1557 AASHTO T99, T134 T135, T136

The Moulds are used for determining the relationship between the moisture content and density of compacted soil. Made of plated steel, includes collar, mould body and base plate.

SL 0670
Standard Compaction Mould BS/EN 1 litre, 5.5 kg.
SL 0671
Compaction Rammer, 50 mm dia, 2.5 kg BS/EN
SL 0672
Compaction Rammer, 50 mm dia, 4.5 kg BS/EN

SL 0673
Proctor Compaction Mould, 1/30 ft3 5.4 kg, ASTM
SL 0674
Proctor Compaction Rammer, 2 in dia, 5.5 lb, 4.1 kg, ASTM
SL 0675
ASTM Compaction Mould, 1/13.33 ft3, 8.2 kg, ASTM
SL 0676
ASTM Compaction Rammer, 2 in dia, 10 lb, 6.3 kg, ASTM
SL 0677
Straightedge, 300 mm

California Bearing Ratio Test Machine

Standards: BS 1377, 1924, EN 13286-47, ASTM D1883, AASHTO T193

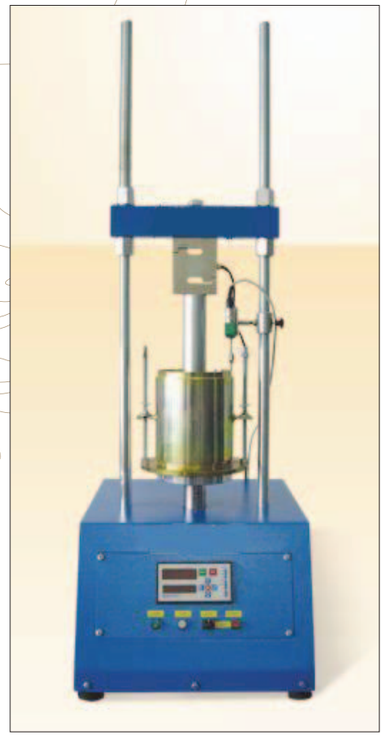
The California Bearing Ratio or CBR test is used for the laboratory evaluation of the bearing value of highway sub-bases and sub-grade.

The CBR is composed by a robust and compact two-column frame with adjustable upper cross beam driven by an electromechanical ram with a maximum capacity of 50 kN and a data acquisition and processing system.
The CBR is designed to load the penetration piston into the soil sample at a constant rate to measure the applied load and piston penetration at pre-determined intervals.

The ram speed can be set between 0.5mm/min to 5mm/min by using Digital Readout Unit. This main feature allows user to perform tests complying to BS / EN or ASTM standards with the same machine.
Rapid adjustment of the platen is also provided.

SL 0678
Digital CBR Testing Equipment
50 kN Load frame complete with Stabilising Bar.
SL 0679
Spare Stabilising Bar

Penetration and Measurement
SL 0680
Penetration Piston.
SL 0681
Penetration Dial Gauge BS,
25 mm x 0.01 mm divisions.
SL 0682
Penetration and Swell Dial Gauge,
ASTM 1 x 0.0005 in divisions.
SL 0683
Bracket and Adaptor for CBR penetration dial gauges.
SL 0684
Displacement Transducer
SL 0685
Load Ring, 28 KN complete
SL 0686
Load Ring, 50 KN complete



Data Acquisition and Control System

Standards: BS 1377, 1924, EN 13286-47, ASTM D1883, AASHTO T193

The LCD graphics Data Acquisition and Controls System (DA/CS) is designed to control the machine and to process the data from linear potentiometric transducers, Load Cells, installed on the CBR machine frame.
The DA/CS compatible design satisfies the ergonomic requirements for various uses.
The digital graphic display allows real time Load vs. penetration graph and value readout. At the end of the test cycle the results can be stored in the large memory or to a PC by using the CBR software.

Dedicated real time CBR software package is available for testing and further data processing, database management and certificate printing.
Specification:
- Calculates corrected CBR value at 2,5mm and 5mm
- Large memory up to 100 tests
- RS232 connection serial port for connecting either PC or printer for data transmission
- Two analogical channels, for Load Cell Linear and potentiometer transducer

SL 0687
Data Acquisition and Controls Sys

Multispeed Test Machine

Standards: BS 1377-7, -8 1924-2,ASTM D2850 D4767, AASHTO T296 T297

The Multispeed 50 kN capacity machine has been designed primarily for performing laboratory CBR and Marshall stability on one load frame.

It is particularly suitable for those laboratories carrying out a mix of these tests, e.g. for road construction. The compact bench mounting design comprises a twin column frame incorporated into the motorised drive system. The Upper beam can be adjusted in height.

A robustly constructed case houses the drive system with careful attention being given to the prevention of ingress of water or grit.

All operating controls are mounted on the front panel of the machine.

The frame provides two fix speed ranges, easily selectable by a gear control switch. An emergency stop is installed as an extra safety feature. Foreseen electric end of stroke switches of the load plate to save the machine from wrong manipulations. Digital Display is also available.

Speeds of operation vary between:

1,27 mm/min. for CBR tests.
50,8 mm/min for Marshall tests.

SL 0688
Multispeed 50 kN capacity Machine
SL 0689
Multispeed 50 kN capacity Machine with digital display

In-situ California Bearing Ratio Apparatus

Standards: BS 1377, 1924, EN 13286-47, ASTM D1883, AASHTO T193

The in-situ California Bearing Ratio is used for the evaluation of the bearing capacity of soil from a vehicle on site immediately and with less delay. Rigid and stable frame, made from corrosion-proof steel.

SL 0690
In-situ California Bearing Ratio
50 KN Conversion Frame BS/EN
SL 0691
50 KN Load Ring complete
SL 0692
Bracket and Adapter
SL 0693
50 kN Capacity Mechanical Jack

SL 0694
Datum Bar Assembly
SL 0695
4.5 kg Annular Surcharge Weight
SL 0696
4.5 kg Slotted Surcharge Weight
SL 0697
Set of Extension Rods
SL 0698
Ball Seating with Connections
SL 0699
CBR Penetration Piston
SL 0700
Penetration Dial Gauge

Expansion Swell Test Equipmen

Standards: BS 1377:2

The Swell Test Equipment is placed on top of the soil sample to enable monitoring of swelling.

The swell test consists of perforated plate with adjustable stem (swell plate) dial gauge tripod and dial gauge.

SL 0701
Swell Plate with adjustable stem
SL 0702
Swell Tripod for mounting Swell dial gauge on the CBR mould collar
SL 0703
Dial Gauge 20mm x 0.01 mm

CBR Mould and Accessories

Standards: BS 1377, 1924, EN 13286-4, EN 1997-2, ASTM D1883, AASHTO T193

The range of moulds and accessories specifically designed to meet the requirements of the relevant stadards.

The moulds and accessories are manufactured from high quality, long-lasting material and with proper maintenance will give years of satisfactory performance.

CBR Mould BS/EN:

SL 0704
CBR Mould Body complete with collar and perforated baseplate BS/EN
SL 0705
CBR Extension Collar, BS/EN
SL 0706
CBR Solid Baseplate, BS/EN

CBR Mould ASTM:

SL 0707
CBR Mould Body complete with collar and perforated baseplate ASTM
SL 0708
CBR Extension Collar, ASTM
SL 0709
CBR Solid Baseplate, ASTM

Accessories For CBR Mould BS/EN:

SL 0710
CBR Perforated Baseplate, BS/EN Plated steel 150mm diameter x 120mm body height
SL 0711
CBR Cutting Collar to fit BS/EN mould body
SL 0712
Pair of C-spanner to fit BS/EN CBR moulds and collars
SL 0713
Baseplate Tool BS/EN
SL 0714
Static Compaction Plug BS/EN
SL 0715
2 kg Annular Surcharge Weight BS/EN
SL 0716
2 kg Split Surcharge Weight, BS/EN
SL 0717
Tamping Rod
SL 0718
Filter Papers, 150 mm diameter. Box of 100

Accessories For CBR Mould ASTM:

SL 0719
CBR Cutting Collar to fit mould body ASTM
SL 0720
CBR Spacing Disc ASTM
SL 0721
Baseplate Tool ASTM
SL 0722
5 lb Annular Surcharge Weight ASTM
SL 0723
5 lb Split Surcharge Weight ASTM
SL 0724
Filter Papers, 150 mm diameter. Box of 100

Triaxial Testing Apparatus

Standards: BS 1377-7,8 1924-2, ASTM D2850 D4767 AASHTO T296 T297

The Triaxial Testing Apparatus test soil samples for the following applications:
· Unconsolidated Undrained (UU)
· Consolidated Undrained (CU)
· Consolidated Drained (CD)
· Unconfined Compression (UC)
The Triaxial Testing Apparatus consists of a 50 KN capacity Load Frame, Platen adaptors, dial gauge or digital transducer assembly, Triaxial Cell, Base and pressure system.
The Triaxial Testing Apparatus provide variable speed from 0.399999" (9.99999 mm) per minute to as low as 0.000001" (0.00001 mm) per minute.
SL 0725
Digital Triaxial Load Frame, 50 KN complete
SL 0726
Platen Adaptor
SL 0727
Unconfined Compression Platens and Dial Gauge Mounting Assembly
SL 0728
Dial Gauge 25 mm travel x 0.01 mm
SL 0729
Dial Gauge 50 mm travel x 0.01 mm
SL 0730
Displacement Transducer, 50 mm

An electronic control system with touch-sensitive keypad for precise setting, control and viewing of all load frame functions.
The Data Acquisition and Controls System (DA/CS) for automated data acquisition and recording of test parameters supplied with complete set of Electronic Measurement Transducers for load, displacement, pressure and volume change.
The Triaxial Software for recording, analysis and report generation, master control panel and de-aired water tank system for precise applications of confining, back and saturation pressures.

Triaxial Cells:
SL 0731
Triaxial Cells, 50 mm
SL 0732
Triaxial Cells, 70 mm
SL 0733
Triaxial Cells, 100 mm
SL 0734
Triaxial Cells Base Adaptors, 38 mm
SL 0735
Triaxial Cells Base Adaptors, 50 mm
SL 0736
Triaxial Cells Base Adaptors, 70 mm
SL 0737
Triaxial Cells Base Adaptors, 100 mm

Accessories:
SL 0738
Grease Gun Supplied complete with one tube of silicone grease lubricant.
SL 0739
Silicone Grease Lubricant Tube
SL 0740
Piston Resistant Clamp

Sample Preparation:

Sample Diameter	38 mm	50 mm	70 mm	100 mm
O-Ring placing tool	**SL 0741**	**SL 0750**	**SL 0759**	**SL 0768**
Suction membrane device	**SL 0742**	**SL 0751**	**SL 0760**	**SL 0769**
Two-way split former	**SL 0743**	**SL 0752**	**SL 0761**	**SL 0770**
Two-part split mould	**SL 0744**	**SL 0753**	**SL 0762**	**SL 0771**
10 ml single-tube drainage burette	**SL 0745**	**SL 0754**	**SL 0763**	**SL 0772**
Valve complete with 6 mm connector	**SL 0746**	**SL 0755**	**SL 0764**	**SL 0773**
Tubing and Connector	**SL 0747**	**SL 0756**	**SL 0765**	**SL 0774**
Rubber membrane (pack of 10)	**SL 0748**	**SL 0757**	**SL 0766**	**SL 0775**
Membrane sealing ring (pack of 10)	**SL 0749**	**SL 0758**	**SL 0767**	**SL 0776**

Deaired Water Apparatus

Standards: BS 1377

The compact self-contained unit will deair water quickly and efficiently down to levels of dissolved oxygen acceptable for the use in soil testing laboratories, triaxial tests, saturation and permeability tests.

it is particularly important that water from which dissolved air has been removed is used in the pore pressure measurement system.

Any dissolved air in the water will lead to errors in the measurement of pore pressure, particularly at low pressures.

The deair water apparatus remove air from the water by a vacuum system which continuously circulates the water in the tank.

The unit is supplied with a clear water container which will hold a maximum of 15 litres of water. Input and output lines are formed using standard 6 mm tube connectors.

SL 0777
Deaired Water Apparatus
SL 0778
Spare Water Tank
SL 0779
Nylon Tubing, 6mm bore dia
1 meter length

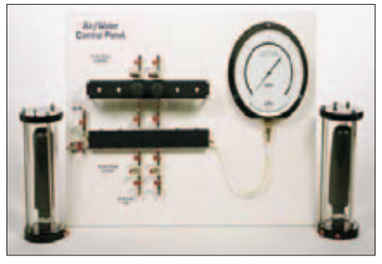
Air/Water Pressure System

To distribute pressure water “up to 1700 kPa.” Simple, practical and extremely accurate to select tests pressure, it can also offer the possibility to further system expansions.

The cell set includes a high pressure air inlet attachment, “a high accurate regulator which enables to set the work pressure and 4 valves for pressure water outlet, water and air drain.” The cell membrane enables the use of deaerated water.
A suitable compressor, which can grant a pressure source, is necessary for using the air/water membrane cell. Air/Water panels are used with an interface to convert air pressure from a standard compressor into water pressure. Bladder Air/Water Cylinder.

SL 0780
Bladder-type Air/Water Pressure Assembly
SL 0781
Spare Bladder Membrain

SL 0782
Two-way Pneumatic Pressure Regulator Panel
SL 0783
Four-way Pneumatic Pressure Regulator Panel
SL 0784
Six-way Pneumatic Pressure Regulator Panel
SL 0785
Air Compressor, 1000 kpa
SL 0786
Filter Unit for Compressor



Oil/Water Pressure System

Standards: BS1377-7, BS1377-8

The Oil/Water Pressure System provides an infinitely variable constant pressure from 0 to 3500 kPa, by using a motorised hydraulic pump, an oil/water interchange vessel, piston/spring and valves with high viscosity oil.

Supplied complete with precision pressure gauge, range 0-3500 KPa. with a control accuracy of better than ± 2.0 kN/m² of the indicated set pressure.

SL 0787
Oil/Water Pressure Apparatus
SL 0788
Universal Pump and Pressure Indicating Panel
SL 0789
Oil, 2 Litres

Microspear, Moisture and Temperature

The instrument measures moisture and temperature of minerals and building materials at depths up to six feet (nearly 2 meters) - simply by insertion.

The digital readings are shown instantly. It has a built-in computer which gives it the flexibility to handle a wide range of materials and water contents.

This instrument will give you quick results and an alternative for sampling and testing using balances or ovens.

Any environment where minerals or building materials are being shipped, stored or processed

Specification:
Measurement Response: 2 seconds
Moisture Range: 0-25%
Moisture Resolution: ±0.1%
Moisture Accuracy: ±0.5% of reading
Temperature Range: -20°C to 60°C
Temperature Resolution: 0.1°C
Temperature Accuracy: <0.5°C
Weight: 1500g
Material Selections:
6 (user configurable)
Power Requirements:
4 x 1.5v AA alkaline cells
(or equivalent)
Shaft Colour Options:
Grey / Orange / Yellow / Blue

SL 0790
Microspear, 1 meter long
SL 0791
Microspear, 2 meter long